

**STUDIES ON IDIOCERINAE LEAFHOPPERS: I. IDIOCERINUS BAKER,  
1915, SYNONYM OF BALOCHA DISTANT, 1908, AND NOTES ON THE  
SPECIES OF BALOCHA**  
(HOMOPTERA: CICADELLIDAE)

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Through the kindness of Reece I. Sailer and J. P. Kramer of the Entomology Research Division, U. S. Department of Agriculture, a large collection of idiocerine leafhoppers has been made available to the author. This paper is the first of a series in which this material will be treated. In this paper *Idiocerinus* Baker has been reduced to a synonym of *Balocha* Distant. The genitalia of one of the two species described by Baker in *Idiocerinus* are illustrated. The second species is known only from females but is also transferred to *Balocha*. A new species of this genus from West Pakistan and another from Sarawak are described. *Balocha busonioides* Baker is removed from the genus and placed in *Pedioscopus* Kirkaldy.

In addition to the previously mentioned entomologists the author wishes to thank W. E. China of the British Museum (Natural History) for notes on the genotype of *Balocha* and for the loan of the Sarawak specimens here discussed.

**Balocha** Distant, 1908

*Balocha* Distant, 1908, Fauna of British India, Rhynchota—Vol. IV, Homoptera: 189.

*Idiocerinus* Baker, 1915, Studies in Philippine Jassoidea, IV. The Philippine Journal of Science X(6): 341.

Redescription of the genus:

Vertex short, about one third as long as pronotum; finely or very finely transversely rugose; anteriorly convexly rounded, hind margin parallel to anterior margin. Eyes close to hind margin of head. Head slightly or definitely wider than pronotum. Filament of antenna short, hair-like. Frons somewhat roundly inflated. Upper extremities of clypeus short and usually not very well defined, strongly bent mesad, in some species directed toward ocellus of opposite side thus giving the impression that the clypeus is broader than long, with clear or obsolete striae. Ocelli on face, closer to eyes than to each other. Clypellus as long as wide or slightly longer than wide, bell-shaped, slightly emarginate at tip. Lora reaching to about midway of lateral margins of clypeus. Pronotum with anterior margin convexly rounded; sides moderately long; hind margin concave; shorter than scutellum (40:30). Scutellum subtriangular, slightly broader than long (50:40). Legs of moderate length, strongly spinulose on the four edges. Mesothoracic wings much longer than abdomen, abdomen reaching to apex of clavus or slightly beyond; wing venation as in figure 1; appendix broad, reaching to third apical cell; costal margin convex; with four apical cells, the third pedunculate in the known species.

*External female genitalia.*—Seventh segment slightly longer than sixth, caudal margin slightly concave or slightly produced and concave medianly; valves slightly longer than abdominal sterna together; with a few setae or fine spines near apex; ovipositor slightly longer than valves, narrow, upcurved apically, glabrous.

*Male genitalia.*—Valves upcurved on lateral aspect, spatulate, upper margin on apical half with very long hairs, hairs longer than depth of valve; with a small globular elevation on upper margin near base (fig. 21). Aedeagus with basal half or two thirds consisting of a more or less cylindrical shaft; apical portion flattened laterally and expanding apically along the median line, with a spine on each side of the anterior and posterior upper angles, the spines on the posterior angle usually longer than those on the anterior, both pairs of spines pointing to base of aedeagus. Gonopore opening apically, slit-like (fig. 18). With an upwardly bent, short, shelf-like structure on each side where the apical and basal portions meet (figs. 6 and 20). The tenth tergum with a ventrally produced lobe each side of the median line (fig. 14), the lobes reaching down to the shelf-like lateral projections of the aedeagus. Connective V or Y-shaped (figs. 11 and 17), caudal end slightly bent upward, aedeagus not fused to caudal end, freely movable. Pygofer shorter than deep; caudal margin convex, undulate or notched. Styles: anterior end flattened laterally, fin-like; posterior end with a hooked process on inner margin extending dorsad and caudad, its apex curved lateroventrad, with a row of spiny or conical elevations pointing ventrad or mesad; the outer side of the posterior end produced as an outer shelf; lower on the shaft than the inner process. This is the common or usual form in the *Idioerinae*.

Type of genus: *Balocha tricolor* Distant 1908. Described from India and Malaya; Tenasserim and Myitta (India).

The known species of *Balocha*, on external appearance, seem closer to the group of species of *Pedioscopus* Kirkaldy having the third apical cell pedunculate. The upper extremities of the clypeus of *Balocha* are short, not well defined, strongly bent mesad, and in some species directed toward the ocellus of the opposite side. In *Pedioscopus* the upper extremities of the clypeus are directed toward the inner margin of the ocellus of the same side. The aedeagi of these two genera are different as can be seen from figures 10 and 22. The absence of subapical cells and the shape of the aedeagus will separate *Balocha* from other genera.

#### *Balocha tricolor* Distant, 1908

*Balocha tricolor* Distant, 1908, Fauna of British India, Rhynchota, Vol. IV, Homoptera: 189.

I have not been able to see the type material. For this reason Distant's description is quoted verbatim: "Vertex and face orange-yellow (with a pale yellow inverted semicircular band on face including ocelli), base of vertex between eyes virescent; pronotum with the anterior area bright testaceous, the posterior area and lateral margins virescent; scutellum bright testaceous; body beneath and legs pale ochraceous; tegmina with the apical pale fuliginous with a black apical spot, the costal area to a little beyond middle broadly orange-yellow,

claval area testaceous red, its inner margin virescent and again outwardly margined with testaceous red; eyes piceous."

Dr. W. E. China kindly examined the type material (all females) and furnished the following additional information: "There is a bright vermilion stripe down the anal margin of the clavus and along the claval suture. Between these stripes, that is, on the sutural half of the clavus, is a clear pale yellow stripe. The costal half of the tegmen is bright translucent orange becoming paler towards the apex of the tegmen. Black apical spot of the tegmen is larger than in (*Balocha pallida* n. sp. described below). The anterior half of the pronotum is bright vermilion and there is a vermilion crescent on the vertex."

Length including tegmen 4 mm. Described from Tenasserim; Myitta (Doherty collector).

Type of the genus. Described from female material. Deposited in the British Museum (Natural History).

Belongs in the same group with *Balocha lucida* n. sp. and *B. pallida* n. sp. Very similar in coloration to the first from which it can be separated by the yellow inverted semicircular band on face.

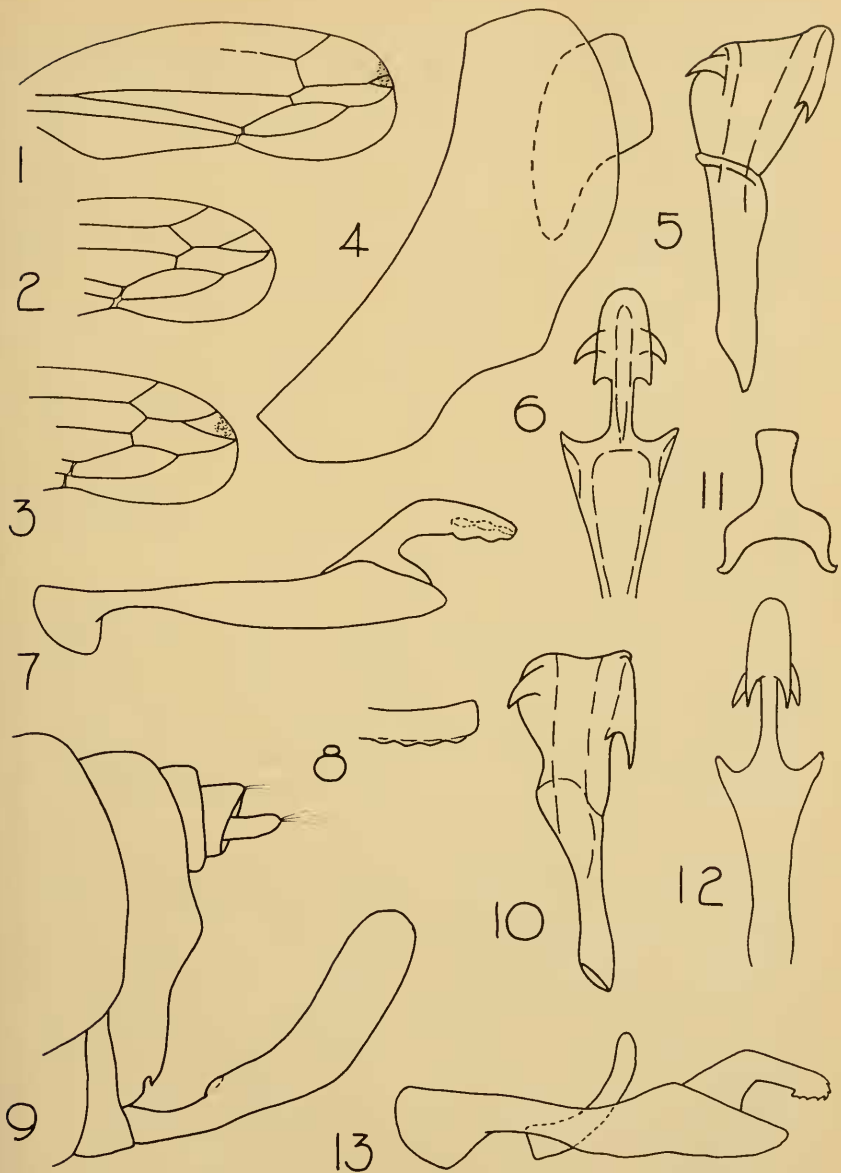
#### *Balocha lucida*, sp. nov.

This species is being described for the purpose of giving a name to some material from Sarawak belonging to the British Museum (Natural History). Male specimens from India or the type locality of *Balocha tricolor* Distant may prove this species to be identical with *B. lucida* sp. nov.

*Female*.—Vertex short, about one third as long as pronotum; finely transversely corrugated, anterior margin convexly round, anterior and posterior margins parallel; eyes extending slightly beyond lateral margins of pronotum. Face near crown transversely corrugate, remaining portion of face shagreen. Upper extremities of clypeus short, pointing to slightly above ocelli on opposite side; clypeus inconspicuously obliquely striate; the clypeus octagonal in appearance. Clypellus bell-shaped, as long as wide. Lora reaching to about middle of lateral margins of clypeus, slightly elevated. Head across eyes wider than from crown to apex of clypellus. Pronotum almost two and one half times as broad as long (61:25), hind margin broadly and shallowly concave. Scutellum triangular, slightly broader than long. Wing venation as in figure 1; tip of abdomen reaching to near base of apical cells; third apical cell pedunculate, peduncle one and three fourths times longer than cell. Vertex anteriorly with transverse bright orange-red band, posteriorly straw or yellow colored. Face straw colored, excepting

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*Balocha lucida*, n. sp. Fig. 1, forewing venation; fig. 4, lateral view of pygofer; fig. 5, lateral view of aedeagus; fig. 6, rear view of aedeagus; fig. 7, lateral view of left style; fig. 8, ventral view of apex of left style. *B. nacreatus* (Baker). Fig. 2, venation of apical half of forewing. *B. pallida* n. sp. Fig. 3, venation of apical half of forewing; Fig. 9, lateral view of male genital capsule; fig. 10, lateral view of aedeagus; fig. 11, ventral view of connective; fig. 12, rear view of aedeagus; fig. 13, lateral view of left style and connective in place.



a bright orange-red narrow semicircular band close to upper margin. Anterior half of pronotum, except on lateral margins, bright orange-red; posterior half and lateral margins straw or yellowish colored. Scutellum bright orange-red. Thorax ventrally and laterally, legs, and abdomen ventrally yellowish. Forewing mainly translucent; with inner longitudinal half of clavus bright orange-red, outer half of clavus pearly white; membrane area adjacent to claval suture bright orange-red to near apex of clavus; costal margin narrowly golden yellow; other portions of corium translucent. Veins on basal half of wing inconspicuous and concolorous with membrane; on apical half sharply defined and brownish; pedunculate cell totally covered by a black spot that extends into the fourth apical cell. Ovipositor shiny brown.

*Female genitalia*.—Hind margin of seventh abdominal sternum slightly convex.

*Male genitalia*.—Pygofer with caudal margin undulate. Aedeagus with caudal spines of apical portion as long as apical portion; spines on opposite side shorter than apical spines. Spiny portion on apical inner projection of style pointing mesad. Figures 4 to 8.

*Balocha lucida*, n. sp., is closer to *B. tricolor* than to the other known species. The absence of a yellow inverted arc across face and the presence of a bright or pale reddish arc on face above ocelli in *B. lucida* suffices to separate it *B. tricolor*.

Holotype male: deposited in the British Museum (Natural History). From Sarawak, collected at the foot of Mt. Dulit, near the junctions of river Tinjar and Lejak; 31. viii. 1932, Oxford University Expedition, B. M. Hubby and A. W. Moore collectors. B. M. 1933-254.

Allotype female: same locality and collectors. 29. viii. 1932. Also in the BM(NH). Paratypes: four specimens in the BM(NH).

#### *Balocha pallida*, sp. nov.

*Male*.—Head mainly orange-yellow; hind margin of head, gena, clypeus, and clypellus pale yellow. Eyes black; ocelli orange yellow, inconspicuous. Pronotum orange yellow, hind margin pale yellow. Scutellum orange yellow, slightly paler toward apex. Thorax ventrally and legs pale yellow; legs with last few spines on all rows on tibiae and all on tarsi brown. Abdomen ventrally yellowish, dorsally orange, genital segments pale yellow, tip of aedeagus brown. Wing with costal area to base of outer apical cell and inner margin of clavus yellow, remaining portions translucent; veins concolorous on basal half of wing, on apex light brown, with a round dark brown spot on third or pedunculate cell. A very small brown spot on base of appendix. Vertex one third as long as pronotum, very finely transversely corrugate; eyes extending slightly beyond lateral margin of pronotum; upper lateral margin of clypeus obsolete, pointing to slightly above ocellus of opposite side, inconspicuously obliquely striate. Face shagreen. Clypellus slightly longer than wide, lateral and apical margins concave. Lora with lateral margin elevated and well defined to about middle of lateral margin of clypeus. Scutellum slightly broader than long. Wing venation as in figure 3; with third apical cell pedunculate, the peduncle nearly a third as long as the cell.

*Male genitalia*.—Aedeagus similar to that of *Balocha lucida* n. sp.; style with spiny area of inner caudal projection pointing ventrad. Pygofer with a rounded projection pointing mesoventrad near base. Connective Y-shaped. Figures 9 to 14. Length, 4 mm. to 14.

*Female*.—Coloration and proportions as in the male; ovipositor brown; external genitalia as in figure 15. Length, 4.2 mm.

*Balocha pallida*, n. sp., is in the same group as *B. tricolor* Distant and *B. lucida* n. sp. but contrary to the last two species the stripes and bands are not in contrasting colors but more or less blended. The peduncle of the third apical cell is shorter than the cell in *B. pallida* n. sp. and longer than the cell in *B. lucida* n. sp.

Holotype: male, deposited in the USNM, Cat. No. 64923. Collected in Lahore, West Pakistan, March-September 1958, J. Maldonado-Capriles collector.

Allotype: female in the USNM, same collecting data as for holotype. Paratypes: eleven specimens of both sexes; two in the BM(NH), two in the USNM, and the remaining in the author's collection; same data as for types.

***Balocha melichari* (Baker, 1915), n. comb.**

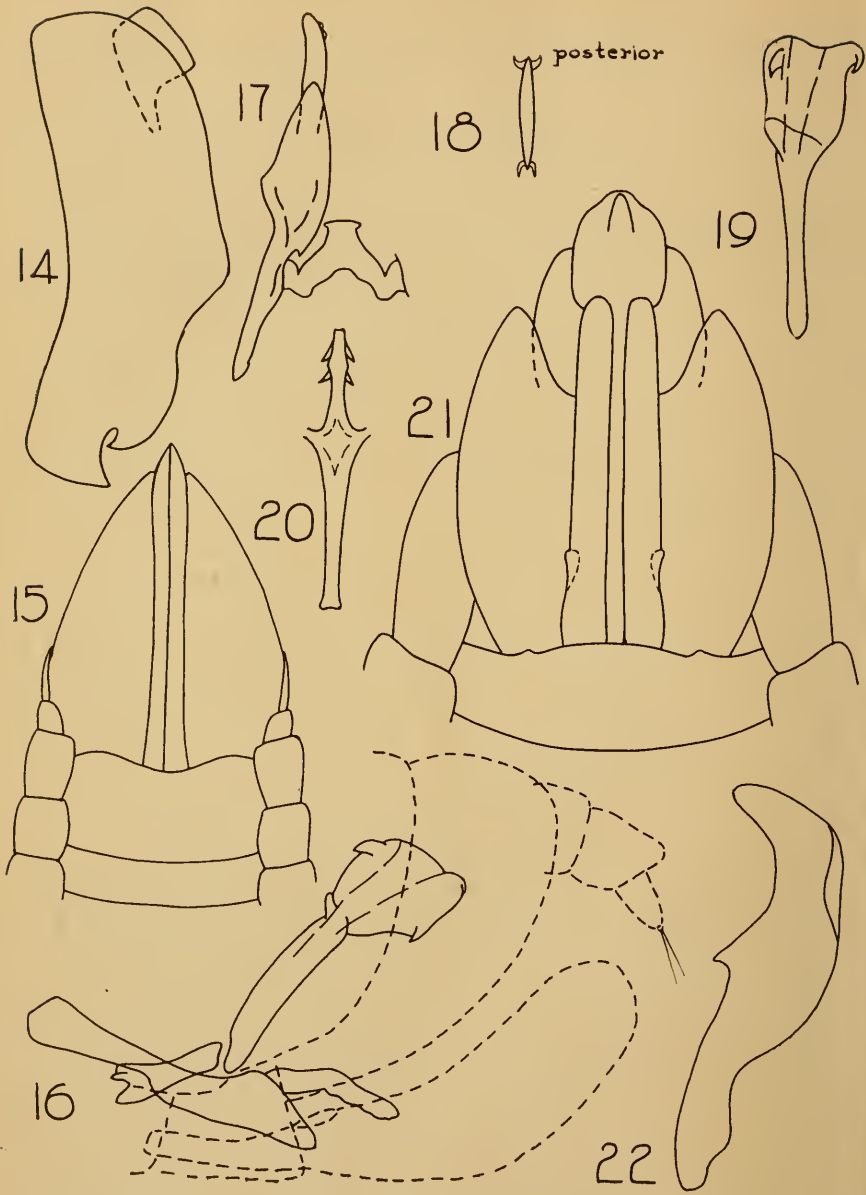
*Idiocerinus melichari* Baker, 1915, Philippine Journ. Sci. X (6): p. 341.

Baker's description copied verbatim is as follows: "Length 4 mm.; width of head 1.3 mm. Ochraceous, tinted with reddish brown on pronotum and scutellum. Tegmina semitransparent; corium very slightly tinted with pale brownish, only the inner veins distinct, the median vein broadly blackened throughout its length; clavus opaque golden brown; punctures obsolete.

Vertex, and face to near ocelli, sharply and strongly cross striate, the striae on face strikingly oblique (a rare condition in the Idiocerini); length of vertex into width between eyes about five times, the length at middle very slightly greater than that at eyes. Face about as broad as long; distance between ocelli once and a half the distance between ocelli and eyes and about once and a half width of clypeus at base, clypeus very short, broadened toward tip, where it is slightly emarginate; lora as long as clypeus, about two thirds as wide, and with outer margin incurved. Width of pronotum two times the length, the length three and a half times that of the vertex; surface very finely shagreened. Scutellum very finely shagreened, the impressed line very inconspicuous and nearly straight; the length equaling that

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*B. pallida* n. sp. fig. 14, lateral view of pygofer; fig. 15, ventral view of abdomen of female allotype. *B. melichari* (Baker). Fig. 16, lateral view of male genital capsule and internal genitalia; fig. 17, ventral view of left style and connective; fig. 18, gonopore as seen from above of aedeagus; fig. 19, lateral view of aedeagus of another specimen from the type locality; fig. 20, rear view of same aedeagus; fig. 21, ventral view of male genital capsule. *Pedioscopus busonioides* (Baker). Fig. 22, lateral view of aedeagus of holotype.



of pronotum; corium with second apical cell pedunculate. Hind margin of anal segment of female truncate. Pygofer of male with slender bases, gradually narrowed apically where the tip is upturned.

LUZON, Mount Maquiling (Coll. Baker)."

The type of this species is a female. Males were found in the type series and the male genitalia are described herein: hind margin of pygofer almost evenly semicircular. Aedeagus similar to that of *Balocha pallida*, n. sp., and *B. lucida*, n. sp. Two externally very similar specimens show great variation in the aedeagus as can be seen from figures 16, 19, and 20. Inner caudal projection of style slightly longer and more extensively spined than in the latter species. Other details of the genitalia as in figures 16 to 20.

The two known Philippine species, *Balocha melichari* (Baker) and *B. nacreatus* (Baker), are characterized by having gray or smoky forewings instead of hyaline and clear as in *B. tricolor* Distant, *B. pallida* n. sp., and *B. lucida*, n. sp. These two species can be separated by the characters given in the key.

The seven specimens at hand of *Balocha melichari* show striking variation in coloration. The most constant color character seems to be the "median vein broadly blackened throughout" but even this is lacking in one of the specimens. Another good pretty constant character, not mentioned in Baker's description, is the whitish scutellum that contrasts with the dark forewings. One of the female specimens is totally different in lacking the blackened vein and in being colored much like *Balocha tricolor*. All these specimens come from the type locality.

***Balocha nacreatus* (Baker, 1915), n. comb.**

*Idiocerinus nacreatus* Baker, 1915, Philippine Journ. Sci. X(6):342.

Baker's description follows: "Length, 4 mm.; width of head, 1.3 mm. Head, thorax, and legs pearl white, tegmina semitransparent, with basal third washed with orange, postnodal veins orange.

Head sculptured as in *I. melichari*; length of vertex into width between eyes about three and one third times, length at middle distinctly greater than at eyes. Face about as broad as long, distance between ocelli once and a half the distance between ocelli and eyes and once and a half the width of clypeus at base, clypeus as in *I. melichari*; lorae as long as clypeus and about two thirds the width, the outer margins not incurved. Width of pronotum two and a fourth times the length, the length two and a half times that of vertex, surface finely shagreened. Scutellum as long as pronotum and one half of vertex together, sculptured as in *melichari*. Corium with second apical cell pedunculate. Genitalia of female as in *melichari*, but side plates strongly, discally carinate.

Luzon, Mount Maquiling (Coll. Baker)."

Specimens of this species have not been examined. Baker separates *I. melichari* from *I. nacreatus* as follows:



- "a<sup>1</sup>. Head and pronotum shining ochraceous, the latter and scutellum tinted with reddish brown; tegmina smoky, the veins concolorous; hind margin of anal segment of female truncate, the side plates not carinate .....  
 .....*melichari* sp. nov.
- a<sup>2</sup>. Head and pronotum shining pearly; tegmina subhyaline, the veins basally orange; hind margin of anal segment of female medially produced and emarginate, the side plates strongly carinate .....*nacreatus* sp. nov."

***Pedioscopus busonioides* (Baker, 1915), n. comb.**

*Balocha busonioides* Baker, 1915, Philippine Journ. Sci. X(6): 330.

The male genitalia of the holotype shows that this is a *Pedioscopus* species and not a *Balocha*. Figure 22 illustrates the aedeagus of this species.

KEY TO THE SPECIES OF *BALOCHA* DISTANT, 1908

1. Wings smoky and with a median longitudinal vein broadly blackened throughout. Pronotum uniformly reddish or orange reddish (Philippines) ..... ***Balocha melichari*** (Baker, 1915)  
 Wings hyaline or subhyaline, not smoky; only with a small blackish spot on pedunculate apical cell. Pronotum if reddish or orange reddish then with caudal margin yellow ..... 2
2. Species conspicuously banded with red or orange-red and yellow ..... 3  
 Pale species, pearly or pale yellow ..... 4
3. With an inverted yellow arc across face including ocelli (India) .....  
 ..... ***Balocha tricolor*** Distant, 1908  
 With a pale or bright reddish arc on face above ocelli (Sarawak) .....  
 ..... ***Balocha lucida***, n. sp.
4. Shining pearly; forewings hyaline, veins basally orange, pedunculate cell with peduncle much shorter than cell; hind margin of anal segment of female medianly produced and emarginate; (Philippines) .....  
 ..... ***Balocha nacreatus*** (Baker, 1915)  
 Pale straw colored; veins of forewing concolorous with wing, pedunculate apical cell with peduncle slightly shorter than cell; hind margin of anal segment of female emarginate; (West Pakistan) .....  
 ..... ***Balocha pallida***, n. sp.

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